The following papers were read, viz.:

1. "Meteorological Register kept at Port Arthur, Van Diemen's Land, during the year 1838, and Register of Tides at Port Arthur, from August 1838 to July 1839, both inclusive." By Deputy-Assistant-Commissary-General Lempriere. Communicated by Sir John Franklin, R.N., F.R.S., &c.

2. "Notice relative to the form of the Blood-particles of the *Ornithorhynchus hystrix*." By John Davy, M.D., F.R.S.

A portion of the blood of the *Ornithorhynchus hystrix*, mixed when fresh with a strong solution of common salt, being examined by the author, exhibited a few globules of irregular shape. Another portion, preserved in syrup, contained numerous globules, most of which had an irregular form, but many were circular; none, however, were elliptical, like those of birds. Hence the author concludes, that in form they accord more with those of Mammalia.

3. "Researches on Electro-chemical equivalents, and on a supposed discrepancy between some of them and the atomic weight of the same bodies, as deduced from the theory of isomorphism." By Lieut.-Colonel P. Yorke. Communicated by Michael Faraday, Esq., D.C.L., F.R.S., &c.

The author describes various experiments made with a view to determine the electro-chemical equivalents of sodium and potassium. Three experiments gave, respectively, 22·3, 22·9, and 25, as the equivalent of the former; and two other experiments gave, respectively, 45 and 41·7, as the equivalent of the latter of these substances. He then inquires what would be the result of the electrolyzation of the aqueous solutions of soda and potash, on the hypothesis of these bodies being composed of two equivalents, or atoms, of metal, and one of oxygen. To determine this question he employs a solution of dichloride of copper in muriatic acid, as being a substance composed of two atoms of metal and one of an electronegative element. Its electrolysis gave as the equivalent of copper, 52·8, 59·4, and 61·6, numbers approximating closely to 63·2, or double the atomic weight of copper. After a long train of investigation, he concludes that there is no reason deducible from the theory of isomorphism for doubting the correctness of the received atomic weights of silver, sodium, &c., but that the difficulty, or anomaly, if it may be so called, should be considered as attaching itself to the di-compounds of copper; and that Faraday's propositions on this subject remain unimpeached.

4. "Second series of Approximate Deductions made from about 50,000 observations taken during the years 1836, 1837, and 1838, at the P. Louis Observatory, Mauritius, four times each day; namely, at 8 A.M., at noon, and at 4 and 8 P.M." By J. A. Lloyd, Esq., F.R.S.

5. "On the Solubility of Silica by Steam; with an account of an experiment on the subject, conducted in the East Indies by